

Suspension post for trucksDescription

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The invention relates to a suspension post for trucks, with a roller arrangement on its upper side, with the aid of which it can be displaced laterally on a rail arranged above the side edge of the vehicle, and with a fastening device on its lower side, with the aid of which it can be locked to the vehicle frame, the fastening device having a post mount which is to be fitted on the vehicle frame and has a bearing half-shell which is open at the top and accommodates a transversely running round bar on the lower side of a straightened-out two-armed pivoting element which is mounted in the post with a horizontal pin and which, in the pivoted-in position, lies in a recess on the front side of the post, and also having a locking device, with the aid of which the post together with the pivoted-in pivoting element can be locked to the post mount, the locking device comprising a locking wedge which is guided perpendicularly in a guide and, in the locking position, is pressed by a spring into a pocket on the post mount, and it being possible for the locking wedge to be lifted out of the pocket with the aid of a lever drive.

Suspension posts of this type, which may also be referred to in technical jargon as curtain sider posts, can be released from the vehicle frame with the aid of the fastening device and pushed to the side in order to make it easier to load or unload the vehicle. The rail on which the roller arrangement runs on the upper side of the suspension post customarily forms part of a tarpaulin framework for the vehicle.

In the case of the suspension post which has been described in more detail at the beginning and is known

from DE-U 298 09 267.0, the lever drive, with the aid of which the locking wedge can be lifted out of the pocket on the post mount in order to be able to pivot out the pivoting element and therefore to release the post from the post mount on the vehicle frame, comprises a two-part actuating lever, wherein the two parts are connected in a manner such that they can be pivoted in relation to each other by a transversely running pin, and wherein the upper part of the same is connected to the locking wedge by means of a tension element in such a manner that, when the upper part is pivoted in relation to the lower part, the locking wedge is lifted out of the pocket on the post mount. After this operation, the pivoting element can be pivoted out, and the transversely running round bar on the lower side of the pivoting element can be unhooked from the upwardly open bearing half-shell of the post mount, whereupon the post can be pushed to the side.

In this embodiment, the locking wedge is guided in the pivoting element such that the post is locked to the vehicle frame via the pivoting element, which makes play-free locking of the post to the vehicle frame difficult. Accordingly, in a preferred embodiment of the known post, a second wedge is also attached to the locking wedge, said second wedge, in the closed position, engaging in a second pocket on the post. Although this embodiment permits a secure and play-free locking of the post to the vehicle frame, it involves a relatively high technical outlay.

The invention was based on the object of developing a suspension post of the type described in more detail at the beginning in such a manner that a play-free and secure locking of the post to the vehicle frame is made possible without a particular technical outlay.

This object is achieved according to the invention in that the locking wedge is guided in a guide fastened to

the post, and in that the lever drive comprises a toggle lever which is coupled with the lower toggle lever element to the locking wedge and with the upper toggle lever element to the upper side of the pivoting element and by which one toggle lever element is extended beyond the toggle joint where it is designed as an actuating lever, the articulation pin between the toggle lever and locking wedge being located below the articulation pin between the pivoting element and post in the pivoted-in position of the pivoting element and actuating lever, and the possible stroke of the locking wedge when the actuating lever is pivoted out being dimensioned such that the articulation pin between the toggle lever and locking wedge can be brought to overlap the articulation pin between the pivoting element and post.

In the case of the post according to the invention, the locking wedge which can be introduced into a pocket on the post mount is not guided, as in the known embodiment, in the straightened-out two-armed pivoting element but rather in the post. As a result, the post is fixedly connected to the post mount on the vehicle frame. In addition, the pivoting-out of the pivoting element is securely blocked by, in the closed position, the articulation pin between the toggle lever and locking wedge being located below the articulation pin between the pivoting element and post.

The invention is explained in more detail below with reference to the attached drawings and using a specific embodiment of the post which also embodies the advantageous developments which are apparent from the dependent claims.

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In the drawings:

fig. 1a shows a view of the lower part of the suspension post according to the invention;

fig. 1b shows a section along the line A-A from fig. 1a;

5 fig. 1c shows a perspective view of the post from fig. 1a;

figs 2a, 2b and 2c show similar views as figs 1a, 1b and 1c after a first step of the operation to release
10 the post from the vehicle frame;

figs 3a, 3b and 3c shows similar views as figs 1a, 1b and 1c after a second step of the operation to release the post from the vehicle frame; and

15 figs 4a, 4b and 4c show similar views as figs 1a, 1b and 1c after a further step of the operation to release the post from the vehicle frame directly before the post is unhooked.

20 According to the drawings, a suspension post 1 according to the invention, of which only the lower part is illustrated since the upper part has a conventional construction, has a vertical body 2
25 comprising a C profile into which a support plate 3 comprising a U profile is pushed and fastened by means of rivets 4. The lateral limbs of the U profile 3 are of a height sufficient such that they have room in the lateral grooves of the C profile 2. A pivoting element
30 5 is mounted by means of two stub pins 6 in the lateral limbs of the U profile 3. The pivoting element substantially comprises two bars 7 which are connected to each other by bridges 8. On the lower side, the pivoting element 5 bears a round bar 9 which can be
35 hooked into an upwardly open bearing half-shell 10 of a post mount 11 which is to be fitted to the vehicle frame. A guide 12 in which a locking wedge 13 is perpendicularly guided is fastened to the support plate 3. In the closed position, said locking wedge is

pressed by means of a spring 14 into a wedge pocket 15 on the post mount 11. The locking wedge 13 has a transversely running elongated hole 16 through which a pin 17, which is connected to the lower toggle lever element 18a of a toggle lever 18, passes.

The lower toggle lever element 18a is connected by means of a pin 19 forming the toggle joint to the upper toggle lever element 18b of the toggle lever 18. In addition, the upper toggle lever element 18b is articulated by means of a pin 20 on the upper side of the pivoting element 5. The lower toggle lever element 18a is extended beyond the toggle joint 19 where it is designed as an actuating lever 21. A spring-loaded catch 23, which can be unlatched counter to the pressure of a spring 22, is provided at the upper end of the support plate 3, can latch in an opening 24 on the upper side of the actuating lever 21 and, in the process, secures said lever.

In order to unhook the suspension post 1 from the post mount 11, the actuating lever 21 is first of all pivoted out of the position shown in figs 1a-c until the position shown in fig 2a-c is reached. In the process, the locking wedge 13 is lifted out of the wedge pocket 15 until its lower end lies somewhat above the upper end of the wedge pocket 15. In this position, the articulation pin 6 of the pivoting element 5 is aligned with the articulation pin 17 of the lower toggle lever element 18a on the locking wedge 13. The pivoting element 5 is then pivoted out, by means of further pulling on the actuating lever 21, until first of all the position shown in figs 3a-c and finally the position shown in figs 4a-c are reached. The round bar 9 on the lower side of the pivoting element 5 can now be unhooked from the bearing half-shell 10 on the post mount 11, whereupon the suspension post 1 can be laterally displaced.

Owing to the fact that the pin 17, which is fastened to the lower toggle lever element 18a, is mounted in the elongated hole 16 of the locking wedge 13, the spring 14 can press the locking wedge 13 fixedly into the wedge pocket 15, thus producing a play-free and secure connection of the post 1 to the post mount 11 on the vehicle frame.

In the closed position, the toggle joint 19 is in a position beyond the dead center with respect to the two articulation pins 17 and 20 of the toggle lever 18, as a result of which the actuating lever 21 is pressed into the closed position on account of the pressure of the spring 14.

A further rigid connection between the pivoting element and the post is produced in the closed position by the articulation pin 17 of the toggle lever 18 on the locking wedge 13 bearing against the support plate 3 below the articulation pin 6 of the pivoting element 5. The system is blocked against the pivoting element 5 pivoting out until the pins 6 and 17 have taken up a congruent position with respect to each other during the opening operation.

The use of a separate support plate 3 comprising a U profile which is fastened by means of rivets 4 in a post body 2 comprising a C profile affords particular advantages which consist in particular in that only the support plate rather than the entire post has to be handled in order to install the fastening device and that only a continuous profile which, if required, can be cut to the required length is required as the actual post.

List of designations

	1	Suspension post
5	2	Post body comprising a C profile
	3	Support plate comprising a U profile
	4	Rivet
	5	Pivoting element
	6	Stub pin
10	7	Perpendicular bar of 5
	8	Bridge of 5
	9	Round bar
10		Bearing half-shell
	11	Post mount
15	12	Guide
	13	Locking wedge
	14	Spring
	15	Wedge pocket
	16	Elongated hole
20	17	Pin (lower articulation pin of 18)
	18	Toggle lever
	18a	Lower toggle lever element
	18b	Upper toggle lever element
	19	Pin (toggle joint)
25	20	Pin (upper articulation pin of 18)
	21	Actuating lever
	22	Spring
	23	Spring-loaded catch
	24	Opening

Claims

1. A suspension post for trucks, with a roller
5 arrangement on its upper side, with the aid of which it
can be displaced laterally on a rail arranged above the
side edge of the vehicle, and with a fastening device
on its lower side, with the aid of which it can be
locked to the vehicle frame, the fastening device
10 having a post mount (11) which is to be fitted on the
vehicle frame and has a bearing half-shell (10) which
is open at the top and accommodates a transversely
running round bar (9) on the lower side of a
straightened-out two-armed pivoting element (5) which
15 is mounted in the post (1) with a horizontal pin (6)
and which, in the pivoted-in position, lies in a recess
on the front side of the post (1), and also having a
locking device, with the aid of which the post (1)
together with the pivoted-in pivoting element (5) can
20 be locked to the post mount (11), the locking device
comprising a locking wedge (13) which is guided
perpendicularly in a guide (12) and, in the locking
position, is pressed by a spring (14) into a pocket
(15) on the post mount (11), and it being possible for
25 the locking wedge (13) to be lifted out of the pocket
(15) with the aid of a lever drive, wherein the locking
wedge (13) is guided in a guide (12) fastened to the
post (1), and wherein the lever drive comprises a
toggle lever (18) which is coupled with the lower
30 toggle lever element (18a) to the locking wedge (13)
and with the upper toggle lever element (18b) to the
upper side of the pivoting element (5) and by which one
toggle lever element (18a) is extended beyond the
toggle joint (19) where it is designed as an actuating
35 lever (21), the articulation pin (17) between the
toggle lever (18) and locking wedge (13) being located
below the articulation pin (6) between the pivoting
element (5) and post (1) in the pivoted-in position of
the pivoting element (5) and actuating lever (21), and

the possible stroke of the locking wedge (13) when the actuating lever (21) is pivoted out being dimensioned such that the articulation pin (17) between the toggle lever (18) and locking wedge (13) can be brought to
5 overlap the articulation pin (6) between the pivoting element (5) and post (1).

2. The suspension post as claimed in claim 1, wherein the lower toggle lever element (18a) is extended beyond
10 the toggle joint (19) where it is designed as an actuating lever (21).

3. The suspension post as claimed in claim 1 or 2, wherein, in the pivoted-in position, the actuating
15 lever (21) is secured by a latching mechanism (23) which can be released counter to the pressure of a spring (22).

4. The suspension post as claimed in one of the
20 preceding claims, wherein the articulation pin (17) of the toggle lever (18) is mounted on the locking wedge (13) in an elongated hole (16) in the latter.

5. The suspension post as claimed in one of the
25 preceding claims, wherein, in the closed position, the toggle joint (19) is in a position beyond the dead center with respect to the two articulation pins (17, 20) of the toggle lever (18).

30 6. The suspension post as claimed in one of the preceding claims, wherein the body (2) of the post (1) comprises a C profile into which a support plate (3) is pushed and fastened therein, and the mechanical parts of the fastening device present in the post (1) are
35 attached to said support plate.

7. The suspension post as claimed in claim 6, wherein the support plate (3) comprises a U profile.

8. The suspension post as claimed in claim 6 or 7, wherein the support plate (3) is fastened in the C profile by rivets (4).

AbstractSuspension post for trucks

A suspension post for trucks, with a roller arrangement on its upper side, with the aid of which it can be displaced laterally on a rail arranged above the side edge of the vehicle, and with a fastening device on its lower side, with the aid of which it can be locked to the vehicle frame, the fastening device having a post mount (11) which is to be fitted on the vehicle frame and has a bearing half-shell (10) which is open at the top and accommodates a transversely running round bar (9) on the lower side of a straightened-out two-armed pivoting element (5) which is mounted in the post (1) with a horizontal pin (6) and which, in the pivoted-in position, lies in a recess on the front side of the post (1), and also having a locking device, with the aid of which the post (1) together with the pivoted-in pivoting element (5) can be locked to the post mount (11), the locking device comprising a locking wedge (13) which is guided perpendicularly in a guide (12) and, in the locking position, is pressed by a spring (14) into a pocket (15) on the post mount (11), and it being possible for the locking wedge (13) to be lifted out of the pocket (15) with the aid of a lever drive, wherein the locking wedge (13) is guided in a guide (12) fastened to the post (1), and wherein the lever drive comprises a toggle lever (18) which is coupled with the lower toggle lever element (18a) to the locking wedge (13) and with the upper toggle lever element (18b) to the upper side of the pivoting element (5) and by which one toggle lever element (18a) is extended beyond the toggle joint (19) where it is designed as an actuating lever (21), the articulation pin (17) between the toggle lever (18) and locking wedge (13) being located below the articulation pin (6) between the pivoting element (5) and post (1) in the pivoted-in position of the pivoting element (5) and

actuating lever (21), and the possible stroke of the locking wedge (13) when the actuating lever (21) is pivoted out being dimensioned such that the articulation pin (17) between the toggle lever (18) and locking wedge (13) can be brought to overlap the articulation pin (6) between the pivoting element (5) and post (1).

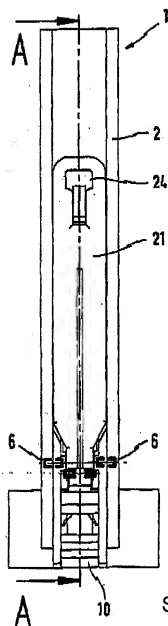
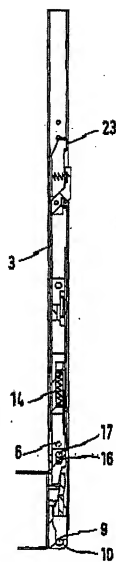


FIG. 1a



SECTION A-A

FIG. 1b

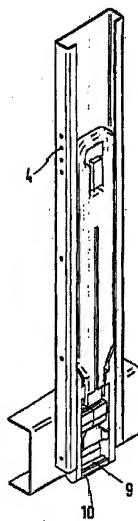
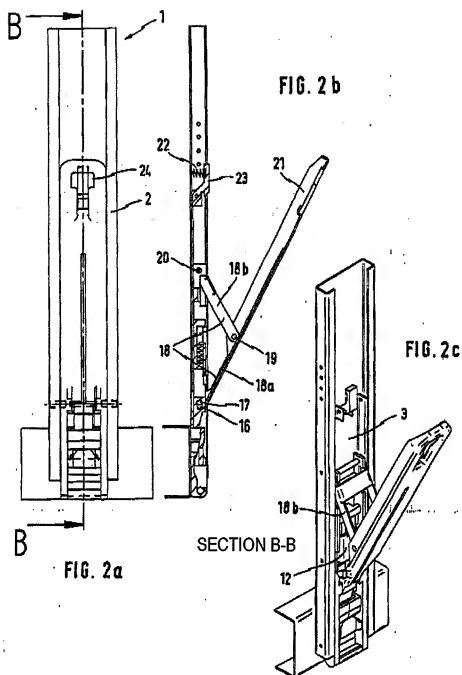


FIG. 1c



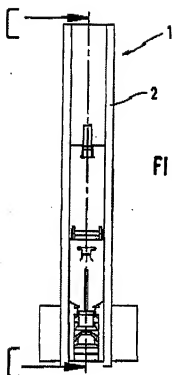


FIG. 3a

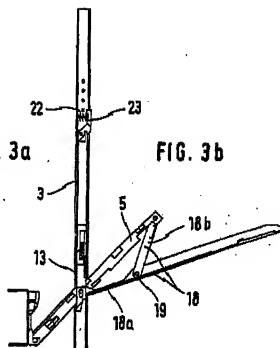


FIG. 3b

SECTION C-C

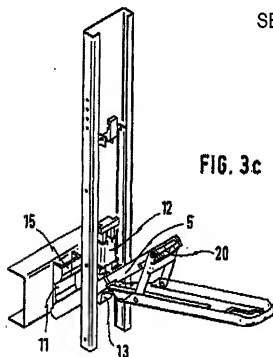


FIG. 3c

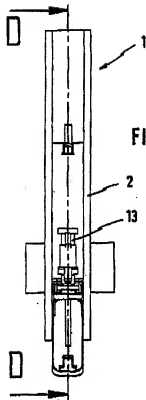


FIG. 4a

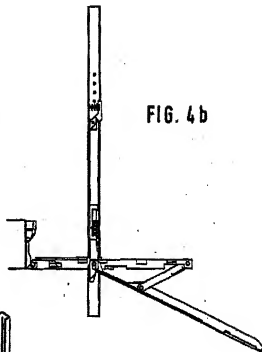


FIG. 4b

SECTION D-D

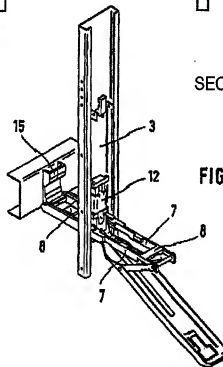


FIG. 4c